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SOURCE OST 10803-40,

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USSR STANDARD FOR NK-50 AIRCRAFT GREASE, HIGH MELTING (OST 10803-40)

(Petroleum Industry)

I. DEFINITION

NK-50 aircraft grease is a consistent paste composed of refined mineral
aviation oil thickened by sodium salts of fatty acids with colloidal oily
graphite.

II. APPLICATION

NK-50 grease is designated for the lubrication of hot friction parts of
valves, aircraft motor rocking shafts and other aircraft parts.

III. SPECIFICATIONS

- | | |
|-------------------------------------|-----------------------|
| 1. Appearance | Homogeneous oil paste |
| 2. Drop-point temperature not below | 200°C |
| 3. Penetration (Richardson) at 25°C | 170-225 |
| 4. Water content not above | 0.3% |
| 5. Ash content not above | 7% |

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| 6. Prevailing base in the ash content | Sodium |
| 7. Mechanical impurities | None |
| 8. Free alkali not above | 0.15% |
| 9. Corrosion test | Test on steel, bronze, and aluminum plates for 72 hr |
| 10. Stability | When left stationary in glass containers for a month, no precipitation of oil should occur |

NOTE: 1. A special grease is prepared from MK-type oil as per OST 14116-40 (replaced by GOST 1013-41).

- ii. Item No 10 of Specifications is guaranteed by the manufacturing plant.
- iii. The 20-25% concentration of colloidal graphite is to be no less than 0.5%, based on dry graphite.

IV. PACKING AND MARKING

The packing and marking of the NK-50 grease is to be in accordance with OST 12955-39 (replaced by GOST 3045-45) applicable to protective greases.

V. REGULATIONS FOR SAMPLING

Sampling is done in accordance with regulations for the sampling of consistent greases as per OST 7872 M. I. iv-37 (replaced by GOST 2517-44).

VI. TEST METHODS

- | | |
|--|---|
| 1. Determination of drop-point temperature | OST 7872, M.I. - 7zh-36 |
| 2. Determination of penetration | OST 7872, M.I. - 6a-36 |
| 3. Determination of water content | OST 17872, M.I. - 19k-38 (replaced by GOST 1044-41) |
| 4. Determination of ash content | OST 7872, M.I. - 26v-36 |
| 5. Determination of mechanical impurities | OST 7872, M.I. - 19i-37 |
| 6. Determination of free alkali content | OST 7872, M.I. - 25k-37 |

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The corrosion test with steel, bronze, and aluminum plates is to be as follows:

a. Apparatus

- (1) Two polished steel plates sized 20 x 20 x 3 mm, the steel to be structural hot-rolled carbon steel, Type 1040 OST NKTP 7123 (replaced by GOST V-1050-41).
- (2) Two polished bronze plates sized 20 x 20 x 3 mm, the bronze formula (composition) to be "Official Bronze" 10-1 OST 6240 (replaced by GOST 618-41).
- (3) Two polished aluminum plates sized 20 x 20 x 3 mm, the aluminum to be of the type used for housings.
- (4) A porcelain cup.
- (5) A glass crystallizing basin no less than 40 mm high.
- (6) A magnifying glass.
- (7) A porcelain spatula.

b. Reagents

- (1) Inert gasoline.
- (2) 96% ethyl alcohol (fresh from the distillery).
- (3) A neutral alcohol-benzene mixture (1:4 by volume).

c. Test Preparations

All plate surfaces, including the side surfaces, are to be polished before each test with 0000 emery cloth.

The polished plates are rinsed in a porcelain cup with inert gasoline and wiped first with absorbent cotton dipped in ethyl alcohol, then with dry cotton until perfectly dry.

The plates are to be handled with the help of clean filter paper and are not to be touched with bare hands. The plates are pronounced suitable for the test only if after a thorough examination with a magnifying glass, no traces of rust are found.

d. Test Procedure

The crystallization bowl is filled to the top with the grease to be tested, using a clean spatula. The plates are then fully immersed into the grease in a vertical position by hand pressure exerted on the plate through a piece of filter paper. No bare hand or any other object shall come into contact with the plate.

The crystallization bowl, with the grease and metal plates immersed in it, is left at a temperature of 115-125° C for a period of time as specified above.

When the specified time has elapsed, the plates are lifted from the grease and placed into a porcelain cup containing an alcohol-benzene mixture and cotton. The top layer of grease is carefully removed, after which the final degreasing of the plate is effected by several consecutive rinsings.

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When complete degreasing has been accomplished, the plates are slightly wiped with dry absorbent cotton, and the surfaces thoroughly examined.

The plate surfaces must be free from spots and rust dots visible to the naked eye. Should traces of corrosion appear on one of the plates only, the test is to be repeated. Should traces of corrosion appear on one of the plates only during the second test, the grease is rejected.

Proposed by the Main Administration for Petroleum Processing of Central and Eastern USSR.

Accepted 7 May 1940.

Effective 1 June 1940.

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